National Institute of Environmental Health Sciences

HbA(1c) levels in schoolchildren with type 1 diabetes are seasonally variable and dependent on weather conditions

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Abstract:

AIMS/HYPOTHESIS: We evaluated seasonal HbA(1c) changes in children with type 1 diabetes and its relation with measures of weather conditions. METHODS: HbA(1c) changes over more than 3 years were evaluated in type 1 diabetic patients who were younger than 18 years and had diabetes duration of more than 12 months, and correlated with measures of weather conditions (ambient temperature, hours of sunshine and solar irradiance). After comparison of autocorrelation patterns, patterns of metabolic control and meteorological data were evaluated using Spearman rank correlation. RESULTS: A total of 3,935 HbA(1c) measurements in 589 school (>/Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 7 years) and 88 preschool (/Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.29 for each correlation). CONCLUSIONS/INTERPRETATION: Seasonal changes of HbA(1c) levels in schoolchildren with type 1 diabetes are a significant phenomenon and should be considered in patient education and diabetes management. They may potentially affect the results of clinical trials using HbA(1c) levels as their primary outcome, as well as HbA(1c)-based diagnosis of diabetes.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3052478

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Solar Radiation, Solar Radiation, Temperature

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Poland

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Diabetes/Obesity, Other Health Impact

Other Health Impact: HbA1c levels

Medical Community Engagement: ☑

resource focus on how the medical community discusses or acts to address health impacts of climate change

A focus of content

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children

Other Vulnerable Population: diabetic patients

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content